

CLEAN COPY OF AMENDED CLAIM

1. (Twice amended) A Schottky barrier diode comprising:

a substrate region of a first conductivity type formed underneath a semiconductor material layer of the same conductivity type;

a metal layer; and

at least two doped regions of a second conductive type formed in said semiconductor material layer, each one of said doped regions being disposed under said metal layer and being separated from the other doped region and said substrate region by portions of said semiconductor layer,
wherein said doped regions are optimally doped to equalize the charge in said semiconductor material layer so that the electric field upon the entire volume of said semiconductor material layer is constant and also equal to the critical electric field.
